



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/553,807 04/21/00 THOMAS

R 0114-00004

EXAMINER

IM22/1023

ROBERT A DUNN
DINNIN & DUNN PC
755 WEST BIG BEAVER
SUITE 2100
TROY MI 48084

LUK, E

ART UNIT

PAPER NUMBER

1722

DATE MAILED:

10/23/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/553,807

Applicant(s)

THOMAS, RONALD

Examiner

Emmanuel S. Luk

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

The following order or arrangement is preferred in framing the specification and, except for the reference to "Microfiche Appendix" and the drawings, each of the lettered items should appear in upper case, without underlining or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) Title of the Invention.
- (b) Cross-References to Related Applications.
- (c) Statement Regarding Federally Sponsored Research or Development.
- (d) Reference to a "Microfiche Appendix" (see 37 CFR 1.96).
- (e) Background of the Invention.
 1. Field of the Invention.
 2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) Brief Summary of the Invention.
- (g) Brief Description of the Several Views of the Drawing(s).
- (h) Detailed Description of the Invention.
- (i) Claim or Claims (commencing on a separate sheet).
- (j) Abstract of the Disclosure (commencing on a separate sheet).
- (k) Drawings.
- (l) Sequence Listing (see 37 CFR 1.821-1.825).

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Berdan (5,511,967).

Berdan teaches an injector for fluid into a molding chamber (22) by a hollow passage (63) having ends for connecting a pressurized fluid supply to the interior of the

Art Unit: 1722

chamber (Col. 2, lines 1-8), a pin (70) extending through the passage and reciprocal (Col. 3, lines 43-57) between an extended position and retracted position, the pin having an enlarged portion (68) extending beyond distal end of passage and substantially blocking the passage when the pin is in its retracted position (Fig. 4), a spring (76) that biases the pin into the retracted position (Col. 3, lines 51-57), and a piston (78) drives to move the pin from the retracted position to extended position (Col. 4, lines 12-15) where the piston lifts the head (68) away from the end face (65) of the supply duct (60). It is well known that it is either pneumatic or hydraulic in driving the piston.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berdan as applied to claim 1 above, and further in view of Green (5,939,101).

Berdan fails to teach the passage having a tapered inner diameter at its distal end and the enlarged portion of the pin has a substantially mating tapered contour.

Green teaches a mold vent having a main body (2) that forms for the passage (7) while valve stem (11) reciprocates between an extended and retracted position (Fig. 1A, 1C, 2) while the valve head (10) has a tapered contour (5) which mates with the tapered inner diameter (6) of the passage. This forms complementary shaped surfaces for forming a valve seat (Col. 2, lines 45-47).

It would have been obvious to one of ordinary skill in the art to modify Berdan with complementary tapered portions as taught by Green on the enlarged portion and hollow passage because it provides a better sealing due to the formation of a valve seat.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berdan as applied to claim 1 above, and further in view of Denne.

Berdan fails to teach an electromagnetic actuator for reciprocating the pin.

Denne teaches an electromagnetic apparatus (Col. 1, lines 31-39) which drives a piston (90) so that it produces a linear motion (Col. 1, lines 5-6) on the piston. The use of an electromagnetic actuator for producing reciprocal movement in a piston or a pin is well known in the actuating arts and it would have been obvious to one of ordinary skill in the art to modify Berdan with the addition of an electromagnetic actuator as taught by Denne to drive the pin because it provides with an actuator that is capable of providing control and precision missing from pneumatic actuators (Col. 2, lines 1-7).

Art Unit: 1722

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berdan as applied to claim 1 above, and further in view of Terao et al.

Berdan fails to teach a ball screw drive for reciprocating the pin.

Terao discloses that in related art that in the actuator system, the electric motor is directly coupled to the ball screw. The piston rod connected to the piston rod, the ball screw, and the drive shaft of the electro motor (Col. 2, lines 3-6). Furthermore, the ball screw shaft (22) engages the piston (20) while an electric motor (26) drives the ball screw shaft (Col. 2, lines 34-36). The use of a ball screw drive for reciprocating a piston or pin is well known in the actuator arts and it would have been obvious to one of ordinary skill in the art to modify Berdan with the substitution of a ball screw drive as taught by Terao as drives for reciprocating the pin because it is a well known alternative drive means for reciprocating movement.

8. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berdan in view of Denne.

Berdan teaches an injector for fluid into a molding chamber (22) by a hollow passage (63) having ends for connecting a pressurized fluid supply to the interior of the chamber (Col. 2, lines 1-8), a pin (70) extending through the passage and reciprocal (Col. 3, lines 43-57) between an extended position and retracted position, the pin having an enlarged portion (68) extending beyond distal end of passage and substantially blocking the passage when the pin is in its retracted position (Fig. 4), a spring (76) that biases the pin into the retracted position (Col. 3, lines 51-57), and a piston (78) drives to

move the pin from the retracted position to extended position (Col. 4, lines 12-15) where the piston lifts the head (68) away from the end face (65) of the supply duct (60). It is well known that it is either pneumatic or hydraulic in driving the piston.

Berdan fails to teach an electronic actuator and controller that reciprocates the pin.

Denne teaches an electromagnetic apparatus (Col. 1, lines 31-39) which drives a piston (90) so that it produces a linear motion (Col. 1, lines 5-6) on the piston. The use of an electromagnetic actuator for producing reciprocal movement in a piston or a pin is well known in the actuating arts and the use of an electronic controller for the controlling the electronic actuator is well known as shown by the actuator being wired to a controller (Col. 8, line 2) which implicitly discloses an electronic controller.

It would have been obvious to one of ordinary skill in the art to modify Berdan with the addition of an electronic actuator and electronic controller as taught by Denne to drive the pin because it provides with an actuator that is capable of providing control and precision missing from pneumatic actuators (Col. 2, lines 1-7).

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berdan in view of Denne as applied to claim 7 above, and further in view of Green.

Berdan and Denne fail to teach the passage having a tapered inner diameter at its distal end and the enlarged portion of the pin has a substantially mating tapered contour.

Green teaches a mold vent having a main body (2) that forms for the passage (7) while valve stem (11) reciprocates between an extended and retracted position (Fig. 1A, 1C, 2) while the valve head (10) has a tapered contour (5) which mates with the tapered inner diameter (6) of the passage. This forms complementary shaped surfaces for forming a valve seat (Col. 2, lines 45-47).

It would have been obvious to one of ordinary skill in the art to modify Berdan with complementary tapered portions as taught by Green on the enlarged portion and hollow passage because it provides a better sealing due to the formation of a valve seat.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Johnson et al, Ziegler et al, Daniels et al, and Sayer et al.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel S. Luk whose telephone number is (703) 305-1558. The examiner can normally be reached on Mondays through Thursdays from 6:30 AM to 4:00 PM and alternate Fridays from 6:30 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

Art Unit: 1722

305-7718 for regular communications and (703) 305-3602 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



NAM NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

E. L.
October 11, 2001